BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Diploma in Civil Engineering Pearson BTEC International Level 3 Extended Diploma in Civil Engineering
Unit number and title	**Unit 31: Specialist Civil Engineering Techniques**
Learning aim(s) (For NQF only)	A: Examine different types of bridges and construction techniques
Assignment title	The different types of bridge design
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You have been employed as a trainee Civil Engineer in the design office of a large Civil Engineering Design Consultancy practice who specialise in the design of civil engineering infrastructure projects. A coastal local authority has approached your company to provide the design and offer advice for the civil engineering infrastructure to support the building of a new 14-kilometre section of relief road linked to a congested road network. The initial route of the road includes sections following the coastline in order to avoid a local town. This section of the coast has suffered from coastal erosion over the last 20 years. The initial route then turns eastward and has to navigate its way across a local mountainous section of land before emerging into a 20-metre-deep valley crossing a river. The crossing of the river is phase one of the scheme. This includes the provision of a new bridge. The new section of road terminates at an existing roundabout of a busy road. The local authority's vison for the key civil engineering infrastructure is to promote the area as a tourist destination with modern iconic elements which complement their location. Around 80% of the initial proposed route will pass through a National Park.

Task 1	With regards to the project in the scenario, you have been given the task of investigating the most appropriate way of crossing the river. Following your research into bridge solutions, you are required to produce a detailed proposal that evaluates the interaction between design considerations for the new structure. Taking your bridge solution and other available options discuss within your proposal the benefits and drawbacks of different bridge construction over the river. This section of the proposal should also explain the underpinning design principles of different types of bridges. The local authority is very interested in the impact of using different materials on the bridge design. The impact that material choice can have on the design of bridges should also be explained in your report. The local authority has provided initial predictions for the traffic load but wants you to discuss the impacts on the bridge design if the initial data is too low.
Checklist of evidence required	A well referenced proposal with images and drawings, inclusive of conclusions relating to bridge solutions that can be adopted for the scenario. This should be a word-processed document with appropriate formatting and page numbers, and legible font.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
31/A.D1	Evaluate the interaction between design considerations for a bridge in a given situation
31/A.M2	Discuss the impact of the traffic levels on bridge design in a given situation
31/A.M1	Discuss the benefits and drawbacks of different approaches to bridge construction in a given situation
31/A.P3	Explain the impact of different traffic levels on the design of a bridge
31/A.P2	Explain the impact that material choice can have on the design of bridges
31/A.P1	Explain the principles that underpin the design of different types of bridges

Sources of information to support you with this Assignment	Marcus Binney, Bridges spanning the world,(Pimpernel Press Ltd 2017) ISBN 9781910258170 Frank Harris–Modern Construction & Ground Engineering Equipment & Methods, 2nd edition, (Prentice Hall, 1995) ISBN 9780 5822 36578 www.ice.org.uk
Other assessment materials attached to this Assignment Brief	*eg, work sheets, risk assessments, case study*